



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE FISSILE
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/9294/AF-85, REVISION 5

400 Seventh Street, S.W.
Washington, D.C. 20590

This certifies that the radioactive material package design described has been certified by the Competent Authority of the United States as meeting the regulatory requirements for a Type AF packaging for fissile radioactive material as prescribed in the regulations of the International Atomic Energy Agency¹ and the United States of America².

1. Package Identification - Global Nuclear Fuels Model No. NPC.
2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9294, Revision 4 (attached).
3. Criticality - The minimum criticality safety index is 0.7. The maximum number of packages per conveyance is determined in accordance with Table X of the IAEA regulations cited in this certificate.
4. General Conditions -
 - a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation. The user shall prepare the package for shipment in accordance with the documentation and applicable regulations.
 - b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology, (PHH-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.
 - c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.

¹ "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

² Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

CERTIFICATE USA/9294/AF-85, REVISION 5

- d. Records of Quality Assurance activities required by Paragraph 309 of the IAEA regulations¹ shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors and consignees in the United States exporting or importing shipments under this certificate shall satisfy the requirements of Subpart H of 10 CFR 71.
5. Marking and Labeling - The package shall bear the marking USA/9294/AF-85 in addition to other required markings and labeling.
6. Expiration Date - This certificate expires on November 30, 2010.

This certificate is issued in accordance with paragraph 817 of the IAEA Regulations and Section 173.471 and 173.472 of Title 49 of the Code of Federal Regulations, in response to the November 28, 2005 petition by Global Nuclear Fuels - Americas, Wilmington, NC and in consideration of other information on file in this Office.

Certified By:



Robert A. McGuire
Associate Administrator for Hazardous Materials Safety

Dec 14 2005
(DATE)

Revision 5 - Issued to endorse U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9294, Revision 4.

CERTIFICATE OF COMPLIANCE FOR RADIOACTIVE MATERIAL PACKAGES

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9294	4	71-9294	USA/9294/AF-85	1	OF 3

2. PREAMBLE

- a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

a. ISSUED TO (*Name and Address*)

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Global Nuclear Fuel - Americas, LLC
P.O. Box 780
Wilmington, NC 28402

Global Nuclear Fuel - Americas, LLC, application dated
January 29, 2001.

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

(1) Model No.: NPC

(2) Description

A cubic stainless steel and foam outer packaging with nine cylindrical containment vessels for the transport of unirradiated, low-enriched uranium oxide powder, pellets, and compounds of uranium as defined in 5(b). The overall package dimensions are approximately 45 inches wide, 45 inches deep, and 44 inches high.

The outer packaging consists of a 10-gage stainless steel outer shell with a ceramic fiber board liner and rigid polyurethane foam filler. The foam filler has a three-by-three array of vertical cylindrical cutouts that accommodate stainless steel sleeves for placement of the containment vessels. The outer packaging is equipped with a top cover that is secured to the outer packaging body by a combination of 16 closure cap screws and four closure strips secured by 24 bolts.

The containment vessel is a maximum 8.515 inches in inner diameter and approximately 32 inches in overall length. The containment vessel is constructed of 18-gage stainless steel, surrounded by a cadmium sheet and polyethylene wrap within a 24-gage stainless steel jacket. The containment vessel is closed by a 16-gage closure lid, a silicone rubber gasket, and a band clamp assembly, which is composed of a 0.063-inch thick strap and retainer, a T-bolt, and a nut.

The gross weight of the package (packaging and contents) is 1,302 kg (2,870 pounds). The maximum weight of the contents is 540 kg (1,190 pounds).

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1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9294	4	71-9294	USA/9294/AF-85	2 OF	3

5.(a) (3) Drawings

The packaging is fabricated and assembled in accordance with the following Global Nuclear Fuel - Americas, LLC, Drawing Nos.:

177D4970, Sheet 1, Revision 0
 177D4970, Sheet 2, Revision 0
 177D4970, Sheet 3, Revision 0
 177D4970, Sheet 4, Revision 0
 177D4970, Sheet 5, Revision 0
 177D4970, Sheet 6, Revision 0
 177D4970, Sheet 7, Revision 0
 177D4970, Sheet 8, Revision 0

(b) Contents

Type, Form, and Maximum Quantity of Material Per Package

Material Forms ¹ (≤5.00 wt. % U-235)	Particle Size Restriction: Minimum OD (Inches)	Maximum Loading per ICCA (kgs)		Maximum Loading per NPC (kgs)	
		Net ⁴	Uranium	Net ⁴	Uranium
Homogenous Uranium Oxide/Compounds ²	N/A	60.0	52.89	540.0	476.1
Heterogenous UO ₂ Pellets (BWR)	0.342	60.0	48.48	540.0	436.3
Heterogenous UO ₂ Pellets(PWR)	0.300	60.0	46.71	540.0	420.4
Heterogenous Uranium Compounds ³	Unrestricted particle size	60.0	40.54	540.0	364.8

¹The Material Form within any NPC must be the same.

²Homogenous compounds limited to UO₂, U₃O₈, UO_{x, x>2}, dried calcium-containing sludges, UO₂(NO₃)₂·6H₂O, and uranium oxide bearing ash.

³Heterogenous compounds limited to UO₂, U₃O₈, and UO_{x, x>2}.

⁴Maximum content weight of any ICCA including plastic or metal receptacles (e.g., bags, bottles, cans).

Note: Uranium-bearing contents may be moderated by water or carbon to any degree and may be mixed with other non-fissile materials with the exception of deuterium, tritium, and beryllium. Materials such as uranium metal and uranium metal alloys are not covered by this certificate.

(c) Criticality Safety Index

0.7

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	9294	4	71-9294	USA/9294/AF-85	3 OF	3


6. In addition to the requirements of Subpart G of 10 CFR Part 71:
- (a) The package must be prepared for shipment and operated in accordance with the Operating Procedures in Chapter 7 of the application.
 - (b) Each packaging must be acceptance tested and maintained in accordance with the Acceptance Tests and Maintenance Program in Chapter 8 of the application.
7. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
8. Revision No. 3 of this certificate may be used until November 30, 2006.
9. Expiration date: November 30, 2010.

REFERENCES

Global Nuclear Fuel - Americas, LLC, application dated January 29, 2001.

Supplements dated: August 1, 23 and 27, 2001; March 4 and September 30, 2002; June 30 and October 3, 2005.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION


Robert A. Nelson, Chief
Licensing Section
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Date November 21, 2005